This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently amended) A mechanical-electrical power conversion system comprising:
a power shaft configured to rotate about an axis; and
a crank comprising:
a crank pin,
a crank arm that transmits force between said crank pin and said power shaft, and
a first transducer coupled to said crank pin, the first transducer comprising a first active area, which includes at least a first portion of an electroactive polymer and at least two first active area electrodes coupled to the first portion of the electroactive polymer and a support structure for securing and for directing a mechanical output derived from the electroactive polymer.

2. (Original)The system of claim 1 wherein said power shaft includes a stall position that is maintained with substantially no electrical current to said first active area electrodes.

3. (Original)The system of claim 1 further including a connecting rod that interconnects said electroactive polymer and said crank pin.

4. (Currently amended) The system of claim 1 wherein ~~the~~ a plane of said electroactive polymer is substantially parallel to said axis.

5. (Currently amended)The system of claim 1 wherein said first transducer is included in an actuator.

6. (Original)The system of claim 5 wherein said actuator applies translational motion to said crank pin, which in turn rotates said power shaft to provide power output thereon.

7. (Original)The system of claim 1 further including a second transducer operably coupled to said crank pin.

8. (Original)The system of claim 7 wherein said first transducer and said second transducer are arranged in a V about said power shaft, the V having an angle between about 0 degrees and 180 degrees.

9. (Original)The system of claim 7 wherein said first transducer and said second transducer are arranged in-line about said power shaft.

10. (Original)The system of claim 7 further including a disc that couples said first transducer and said crank pin and couples said second transducer and said crank pin.

11. (Currently Amended)The system of claim 1 wherein said crank is included in a plurality of cranks mounted concentrically on said power shaft, said plurality of cranks comprising a second crank, the second crank comprising:

a second crank pin

a second crank arm that transmits force between said second crank pin and said power shaft; and

a second transducer coupled to said second crank pin, the second transducer comprising a second active area, which includes at least a first portion of a second electroactive polymer and at least two electrodes coupled to the first portion of the second electroactive polymer and a second support structure for securing and for directing a mechanical output derived from the second electroactive polymer.

12. (Currently amended)The system of claim 11 wherein said plurality of cranks are arranged substantially equally about said power shaft and arranged to rotate about said ~~fixed~~ axis.

13. (Original)The system of claim 11 wherein said first transducer is a first monolithic transducer and said second transducer is a second monolithic transducer.

14. (Currently amended)The system of claim ~~11~~ 13 wherein ~~the~~ active areas of the first monolithic transducer are offset from ~~the~~ active areas of the second monolithic transducer.

15. (Currently amended)The system of claim 11 wherein deflection of said ~~first~~ electroactive polymer and said second electroactive polymer along a path provided by the crank arm is

substantially independent of elastic potential energy of said ~~first~~ electroactive polymer and said second electroactive polymer.

16. (Currently amended)The system of claim 1 wherein the first transducer comprises a second active area comprising at least two second active area electrodes and a second portion of the electroactive polymer coupled to the at least two second active area electrodes.

17. (Currently amended)The system of claim 16 wherein the first and second active areas of the first transducer are symmetrically arranged around said power shaft.

18. (Currently amended)The system of claim 16 wherein the at least two first active area electrodes and the at least two second active area electrodes of the first transducer are arranged radially around said power shaft.

19. (Original)The system of claim 16 wherein elastic potential energy stored in the second portion of said electroactive polymer during actuation of the second active area at least partially contributes to deflection of the first portion of said electroactive polymer.

20. (Original)The system of claim 16 wherein deflection of said electroactive polymer along a path provided by the crank arm is substantially independent of elastic potential energy of said electroactive polymer.

21. (Original)The system of claim 16 wherein one of the at least two first active area electrodes and one of the at least two second active area electrodes are in electrical communication.

22. (Original)The system of claim 21 wherein said one of the at least two first active area electrodes and said one of the at least two second active area electrodes are included in a common electrode.

23. (Original)The system of claim 16 wherein rotation of said power shaft is assisted by mechanical input energy.

24. (Currently amended)The system of claim 1 wherein the support structure secures a portion of the electroactive polymer with a first surface area at a first position and wherein the portion of the polymer is stretched from an initial surface area to the first surface area to improve the mechanical response of the transducer when it deflects from the first position and wherein the support structure is for supplying a force to the stretched portion of the polymer that prevents the stretched portion of the electroactive polymer from returning from the first surface area to about its initial surface area.

25. (Original)The system of claim 1 further comprising a mechanism that assists rotation of the power shaft.

26. (Original)The system of claim 25 wherein the mechanism is a flywheel.

27. (Currently amended)The system of claim 1 wherein said first transducer is capable of rotating said power shaft in both rotational directions about said ~~fixed~~ axis.

28. (Original)The system of claim 1 wherein elastic return of said electroactive polymer contributes to rotation of said power shaft.

29. (Previously Presented)The system of claim 28 further comprising a device for coupling an external load to the electroactive polymer that increases elastic strain of said electroactive polymer.

30. (Original)The system of claim 1 further including a bearing between said electroactive polymer and said crank pin that allows the electroactive polymer to rotate about said crank pin.

31. (Currently Amended)A mechanical-electrical power conversion system comprising:

a power shaft configured to rotate about a fixed axis; and

a crank comprising:

a crank pin,

a crank arm that transmits force between said crank pin and said power shaft, and

a first transducer coupled to said crank pin, the first transducer comprising a first active area, which includes at least a first portion of an electroactive polymer and at least two first active area electrodes coupled to the first portion of the electroactive polymer

and a support structure for securing and for directing a mechanical output of the electroactive polymer wherein the support structure secures a portion of the electroactive polymer with a first surface area at a first position of the first transducer and wherein the portion of the polymer is stretched from an initial surface area to the first surface area to improve the mechanical response of the first transducer when it deflects from the first position and wherein the support structure is for supplying a force to the stretched portion of the electroactive polymer that prevents the stretched portion of the electroactive polymer from returning from the first surface area to about its initial surface area.

32. (Original)The system of claim 31 wherein said power shaft includes a stall position that is maintained with substantially no electrical current to said first active area electrodes.

33. (Currently Amended)The system of claim 31 wherein ~~the~~ a plane of said electroactive polymer is substantially parallel to said fixed axis.

34. (Original)The system of claim 31 wherein said electroactive polymer is a dielectric elastomer.

35. (Currently Amended)The system of claim 31 wherein said first transducer is capable of rotating said power shaft in both rotational directions about said fixed axis.

36. (Previously Presented)The system of claim 31 further comprising a device for coupling an external load to the electroactive polymer that increases elastic strain of said electroactive polymer.

37. (Currently Amended)A mechanical-electrical power conversion system comprising:

a power shaft configured to rotate about a fixed axis; and

a crank comprising:

a crank pin,

a crank arm that transmits force between said crank pin and said power shaft, and

a first transducer coupled to said crank pin, the first transducer comprising a first active area, which includes at least a first portion of an electroactive polymer and at least two first active area electrodes coupled to the first portion of the electroactive polymer, and a support structure for securing and for directing a mechanical output of the

electroactive polymer wherein elastic return of said electroactive polymer at least partially contributes to rotation of said power shaft.

38. (Original)The system of claim 37 wherein said power shaft includes a stall position that is maintained with substantially no electrical current to said first active area electrodes.

39. (Currently Amended)The system of claim 37 wherein said first transducer is included in an actuator.

40. (Original)The system of claim 39 wherein said actuator applies translational motion to said crank pin, which in turn rotates said power shaft to provide power output thereon.

41. (Previously Presented)The system of claim 37 wherein said crank is included in a plurality of cranks mounted concentrically on said power shaft, said plurality of cranks comprising a second crank, the second crank comprising:

a second crank pin

a second crank arm that transmits force between said second crank pin and said power shaft; and

a second transducer coupled to said crank pin, the second transducer comprising a second active area, which includes at least a first portion of a second electroactive polymer and at least two electrodes coupled to the first portion of the second electroactive polymer and a second support structure for securing and for directing a mechanical output derived from the second electroactive polymer.

42. (Original)The system of claim 41 wherein said plurality of cranks are arranged substantially equally about said power shaft and arranged to rotate about said fixed axis.

43. (Original)The system of claim 41 wherein said first transducer is a first monolithic transducer and said second transducer is a second monolithic transducer.

44. (Currently Amended)The system of claim ~~41~~ 43 wherein ~~the~~ active areas of the first monolithic transducer are offset from ~~the~~ active areas of the second monolithic transducer.

45. (Currently Amended)The system of claim 41 wherein deflection of said ~~first~~ electroactive polymer and said second electroactive polymer along a path provided by the crank arm is substantially independent of elastic potential energy of said ~~first~~ electroactive polymer and said second electroactive polymer.

46. (Original)The system of claim 37 wherein the transducer comprises a second active area comprising at least two second active area electrodes and a second portion of the electroactive polymer coupled to the at least two second active area electrodes.

47. (Currently Amended)The system of claim 46 wherein the first and second active areas of the first transducer are symmetrically arranged around said power shaft.

48. (Currently Amended)The system of claim 46 wherein the at least two first active area electrodes and the at least two second active area electrodes of the first transducer are arranged radially around said power shaft.

49. (Original)The system of claim 46 wherein elastic potential energy stored in the second portion of said electroactive polymer during actuation of the second active area at least partially contributes to deflection of the first portion of said electroactive polymer.

50. (Original)The system of claim 46 wherein deflection of said electroactive polymer along a path provided by the crank arm is substantially independent of elastic potential energy of said electroactive polymer.

51. (Previously Presented)The system of claim 37 further comprising a device for coupling an external load to the electroactive polymer that increases elastic strain of said electroactive polymer.

52. (Original)The system of claim 31 wherein said electroactive polymer is a dielectric elastomer.

53. (Currently Amended)A mechanical-electrical power conversion system comprising:

a power shaft configured to rotate about an axis; and

a crank comprising:

a crank pin,

a crank arm that transmits force between said crank pin and said power shaft, and

a ~~first~~ transducer coupled to said crank pin, the transducer comprising a first active area, which includes at least a first portion of an electroactive polymer and at least two first active area electrodes coupled to the first portion of the electroactive polymer, and a support structure for securing and for directing a mechanical output derived from the electroactive polymer wherein said power shaft includes a stall position that is maintained with substantially no electrical current to said first active area electrodes.